mirubee user's manual

Got your mirubox yet? Congratulations and welcome to mirubee! If you don't have it yet you can buy it here.

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mirubox setup

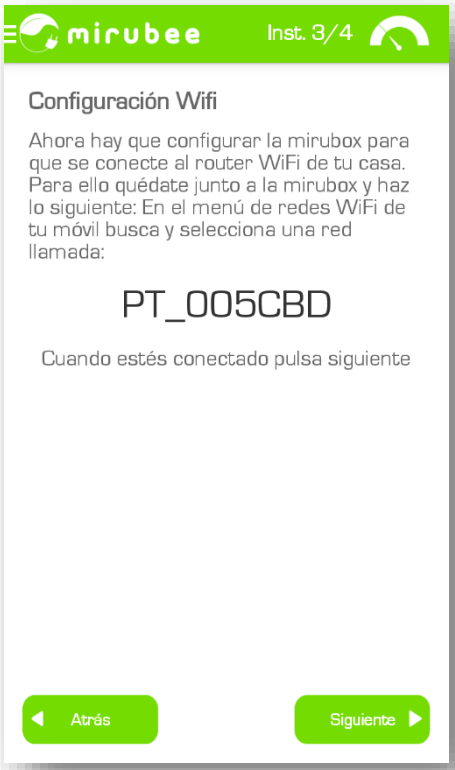
When you have your mirubox, the first thing you have to do is install it on your home electrical panel following the instructions in the INSTALLATION MANUAL.

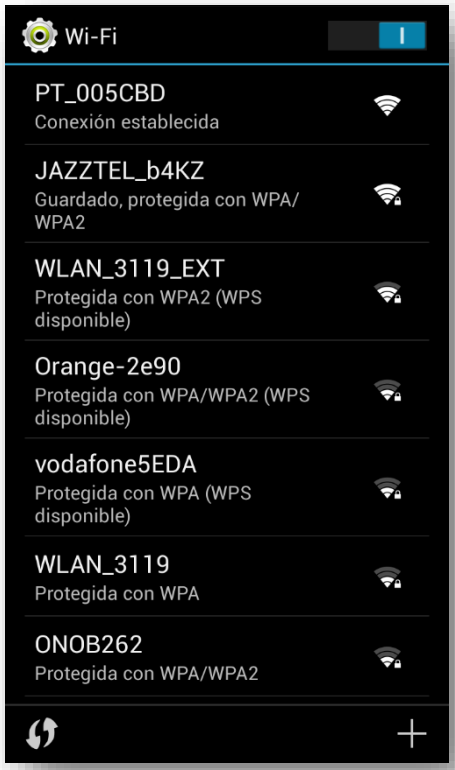
Once the mirubox is installed in the electrical panel and turned on (power button is green), start the "Setup Wizard" **from the mobile application or via the web on your computer**. You can download the mobile applications here if you haven't already done so.

The first step of the setup wizard is to enter the code of the mirubox. You can do this either by scanning the QR code on the sticker or by entering it manually.

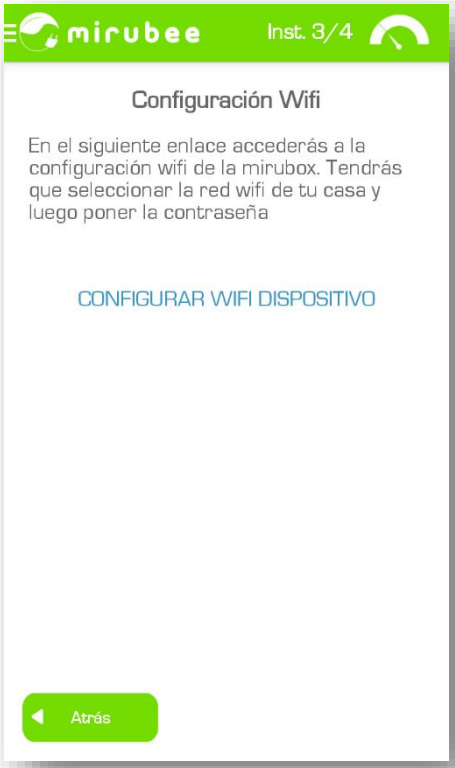
You should then indicate which electrical subcircuit you have chosen for the white clamp (lighting, air conditioning / heating pump, solar panels, etc). You can change the clamp's circuit later if you wish to.

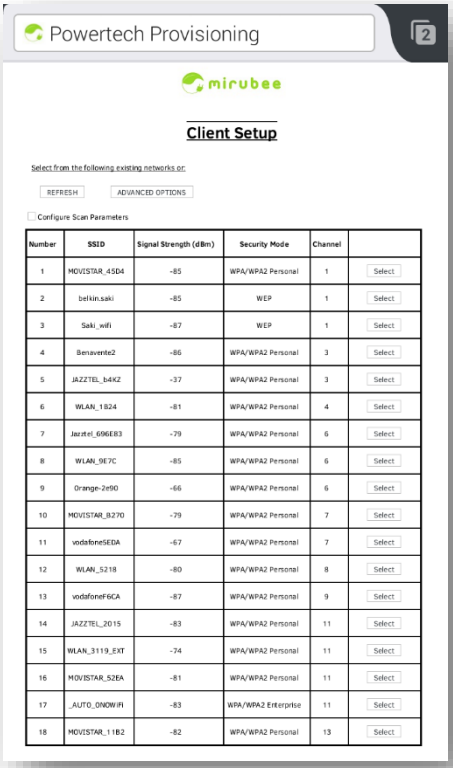
Now you have to configure the WiFi connection. To do this you will have to connect your mobile phone or computer to a WiFi network called *PT_xxxxxx* created by the mirubox, just as you would connect to any WiFi network. It is advisable to be close to the mirubox to perform the WiFi setup.

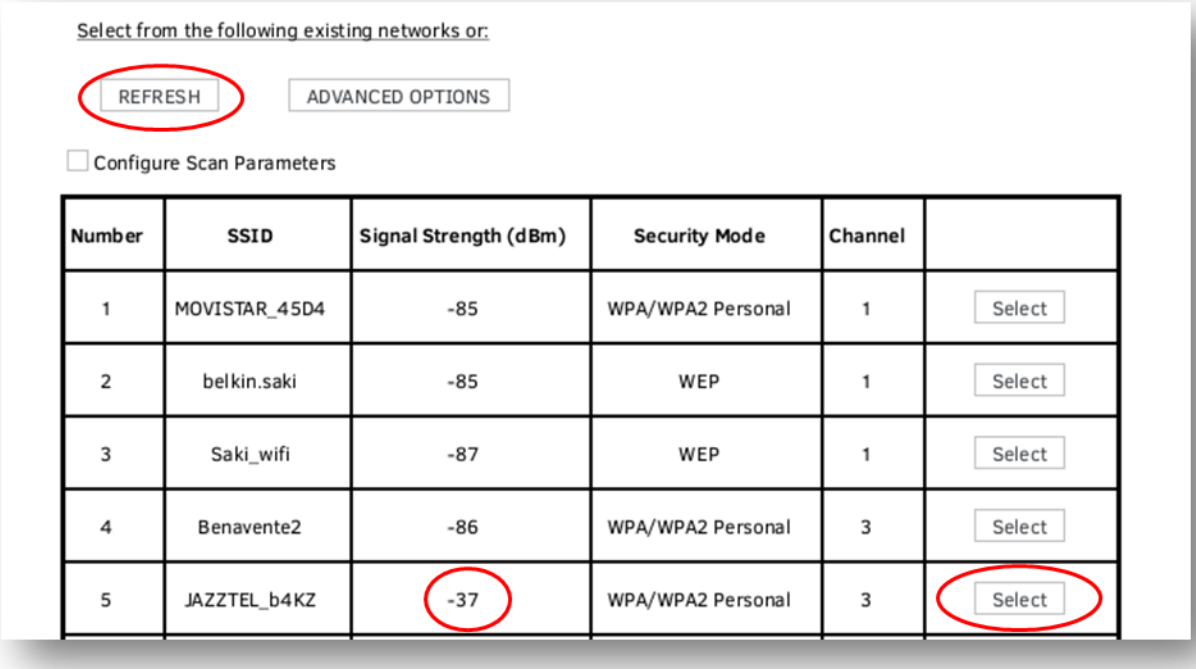

mirubee
Inst. 3/4
Configuración Wifi
Ahora hay que configurar la mirubox para que se conecte al router WiFi de tu casa. Para ello quédate junto a la mirubox y haz lo siguiente: En el menú de redes WiFi de tu móvil busca y selecciona una red llamada:
PT_005CBD
Cuando estés conectado pulsa siguiente
Atrás
Siguiente



When you have connected to the *PT_xxxxxx* network, click the "*next*" button and you will see a link called "*setup wifi device*". Clicking on the link will open a webpage through an internet browser which, after a few seconds, will display a list of WiFi networks that the mirubox can see. Scrolling through the list you should find your home WiFi network, which you should choose by pressing the "*Select*" button (you can zoom in on your smartphone screen).


mirubee
Inst. 3/4
Configuración Wifi
En el siguiente enlace accederás a la configuración wifi de la mirubox. Tendrás que seleccionar la red wifi de tu casa y luego poner la contraseña
CONFIGURAR WIFI DISPOSITIVO
Atrás





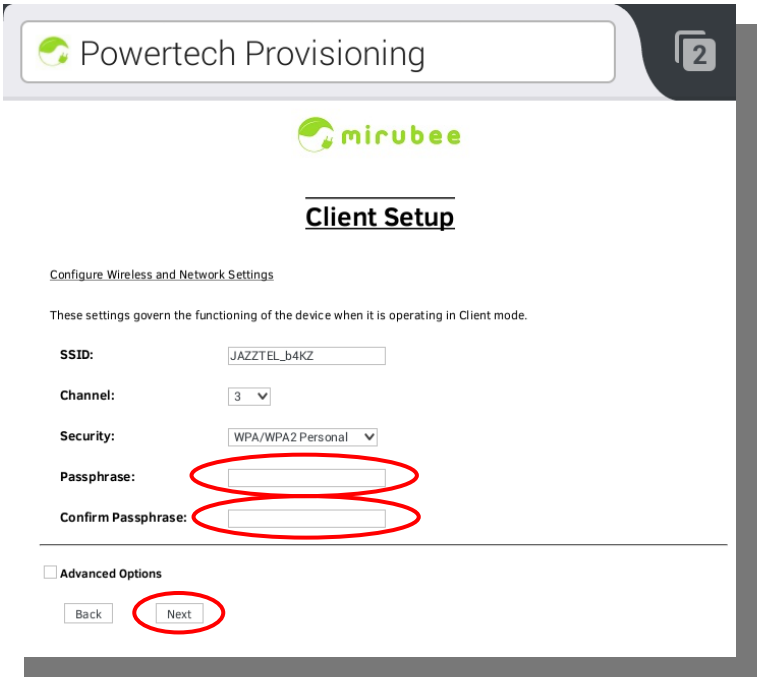
If your home WiFi network is not listed click the "REFRESH" button to repeat the search for WiFi networks. If your network does not appear

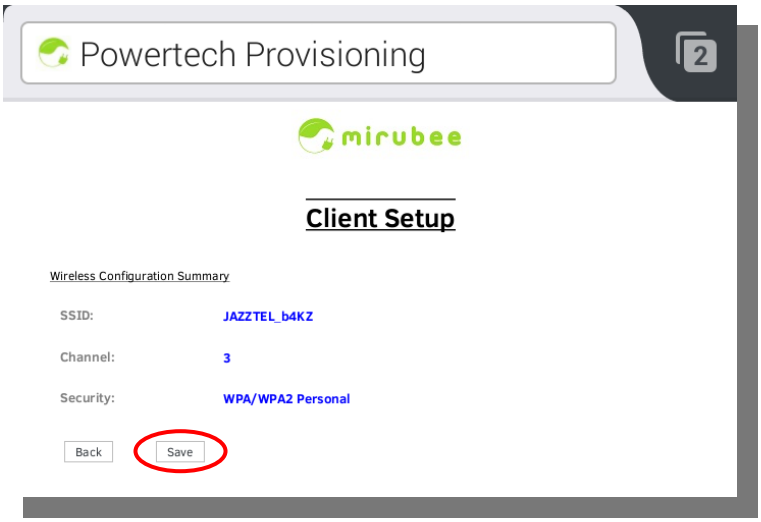
after several attempts it probably means your WiFi coverage doesn't reach the electrical panel in your home.

TECHNICAL NOTE

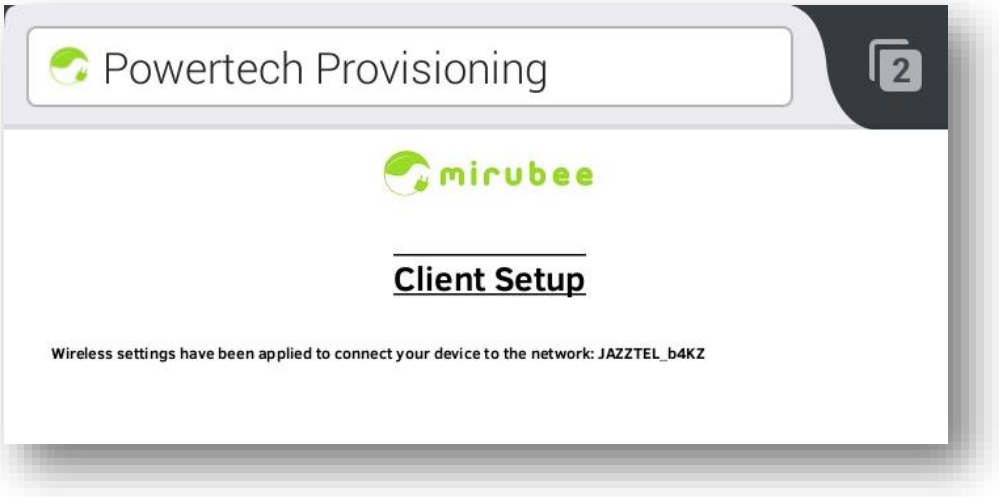
Minimum recommended WiFi coverage -75dBm. Press "REFRESH" several times to ensure good WiFi measurement. A good coverage value is something greater than -75dBm, for example -65dBm. Poor coverage would be a value of less than -75dBm, e.g. -85dBm. Often a mirubox with WiFi coverage a little lower than -75dBm will also work (-80dBm) but is more prone to disconnection.

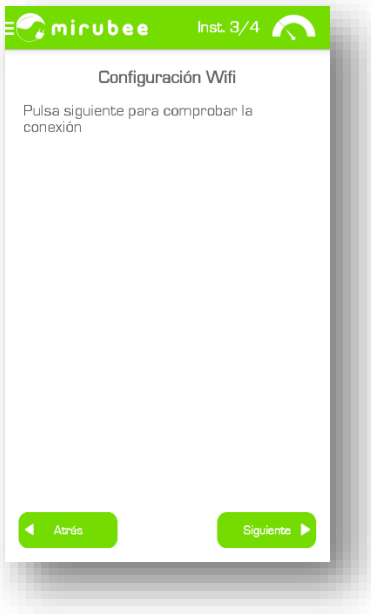
In the next menu all you need to do is enter the password of your home WiFi network (twice), press "*Next*" and then "*Save*".

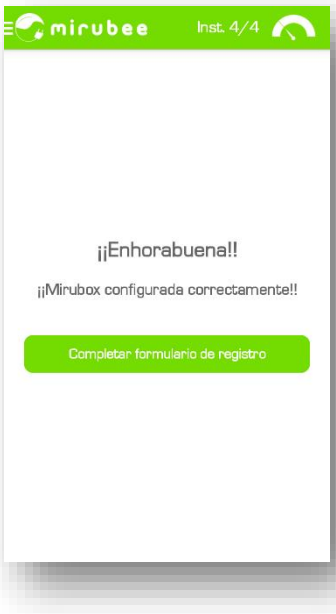




The meter will then reset and connect to your home WiFi network. A confirmation message should appear on the next screen.







If for some reason you entered the wrong password and the WiFi doesn't connect, you will have to RESET the mirubox. To do this press the black button on the mirubox for at least 10 seconds until the STATUS light flashes. After the reset, the WiFi network *PT_xxxxxx* will appear again and you can repeat the steps in the setup wizard.

Registration data

When you register in mirubee we ask you to specify several characteristics of your home as well as the most important appliances. The reason for requesting this information is twofold: firstly we use statistical data to help compare your home with those of similar characteristics (you can't compare a large house that has electric heating and 5 inhabitants with a small house that has gas heating and two inhabitants). Secondly, knowing what equipment you have in your house helps the electricity consumption identification algorithm know what appliances to look for.

The last step of the registration form asks about the tariff data of your electricity contract. It is not essential to enter this data (if you do not have it to hand, for example) you can enter it later at any time. The €/kWh cost data comes with a default value that you can overwrite if it does not match what it says on your electric bill. The cost for using the appliances is calculated in £ by mirubee based on this data.

TECHNICAL NOTE

The data mirubee uses by default is the official value of the regulated tariff, which does not include VAT. If you want the € costs that appear in the application to include VAT you must enter the €/kWh value increased by the corresponding percentage.

First steps in mirubee

Once you have setup the mirubox and completed the registration form, you're ready to start.

The first thing you will see, immediately after the mirubox has connected to the WiFi, will be the instant power information ("*Real Time*" section). This screen displays the overall consumption of your home in Watts (W) which is updated every 2 seconds.

With this you can get a first impression of the consumption of different appliances in your home by turning the lights on and off, TVs, etc. and monitoring the graph at the bottom to see the jump in power consumption that they cause. An interesting exercise is to find out which appliances are responsible for stand-by consumption in your home (it's more significant than you'd think!). You can unplug appliances and disconnect subcircuits of the electrical panel until you reach consumption of nearly 0W (don't turn off the internet router or you'll disconnect the mirubox and won't see anything!)

TECHNICAL NOTE:
At the time of writing, the flat rate price in Spain (same price at any hour) is € 0.124/kWh (€ 0.15/kWh inc. VAT).
A 30W decrease in stand-by represents an annual saving of ***€ 40****.*

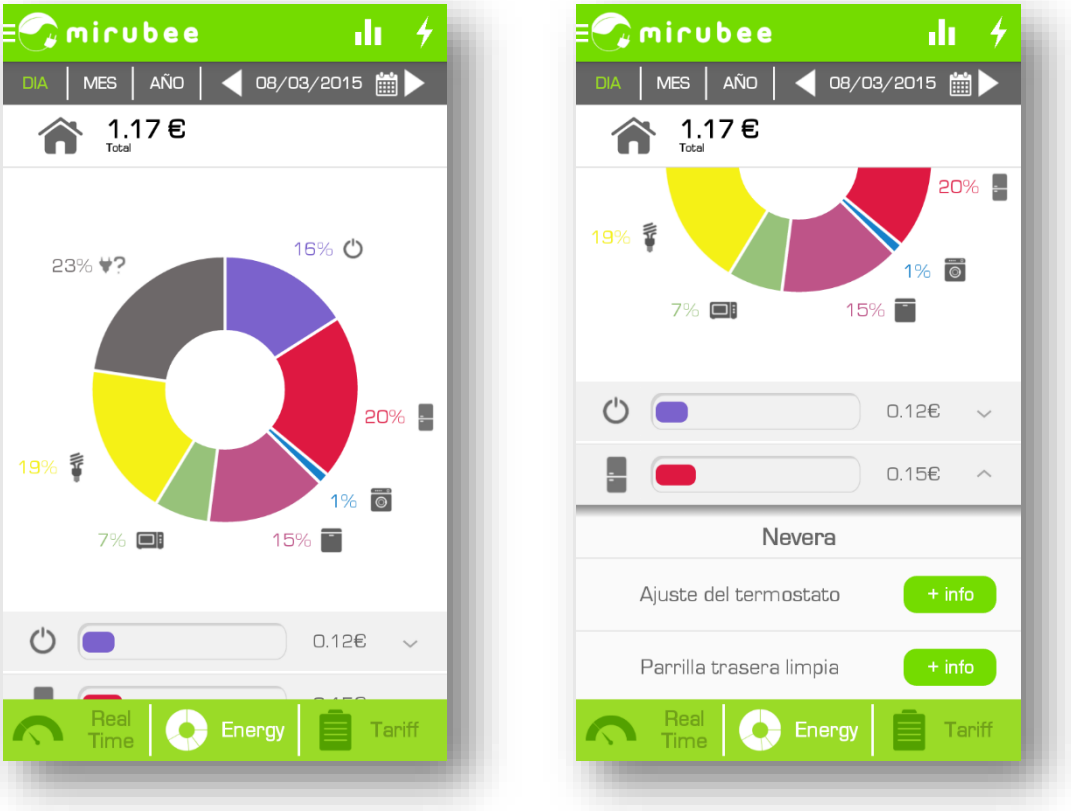
As the days pass and you accumulate data you will notice more interesting analyses and, gradually, the consumption information for each device separately.

How does the consumption breakdown work?

The most sophisticated part of mirubee is the ***inspectee*** technology. ***Inspectee*** is an electrical pattern recognition algorithm that functions rather like a voice recognition system. Instead of recognising words, mirubee recognises the use of appliances. With mirubee you no longer need to put an electric meter on each device to know how much it consumes. From one general measurement point (the electric panel of your house) you can find out the consumption of major appliances independently.

The pattern recognition algorithm analyses the graph of the previous 24h every night. That means the breakdown of the consumption information is always available the next day (the consumption breakdown is not instantaneous).

Inspectee is a "living" algorithm that learns what happens in your home. During the first few days of use the mirubee algorithm will not be able to identify many of the appliances because **it needs time to learn** (also called the ***training*** *phase*). The time for this depends on each appliance, the number of times they are used and the number of appliances that are used at the same time (the more overlaps there are the longer it will take to learn). In any case, the learning time usually lasts between 2 and 3 weeks.

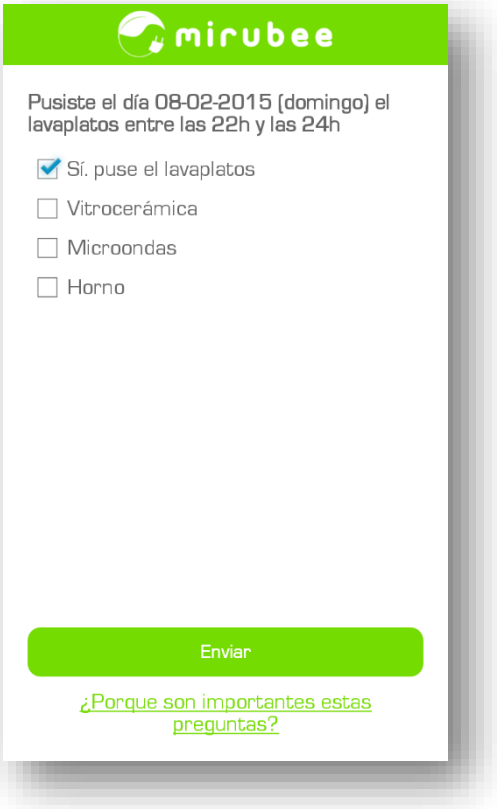


There are appliances that require little training and are recognised almost immediately. This is the case for the washing machine or microwave. Other appliances such as the fridge or hot water heater are automatically recognised after a week of use. Finally, there are appliances that are a little more difficult to recognise that may require a little help from you. This is the case for the dishwasher, oven, electric heater, dryer and "conventional" hob (not induction).

In this case it works like this: when *inspectee* detects suspicious consumption that may be any of the above devices, **it asks a question through the mobile app** something like this:

Did you use the dishwasher on 08-02-2015 (Sunday) between 22h and 24h?

Usually there will be several options and you should confirm whether it was the dishwasher, if it was something else, or if you didn't use anything known or just can't remember.



Once you have confirmed the use of this device, the reference graph is saved and you will not be asked again about that appliance when used in that program. If on another day you use the dishwasher in another program, you may receive a confirmation question. Also, if the appliance is replaced with a new one the questions will be generated again because inspectee needs to be retrained on that device.

What is the white clamp for?

Currently *inspectee* is able to identify the 9 appliances mentioned above, but cannot identify things like TV, lighting or air conditioning / heat pump. These devices do not have an identifiable electrical footprint or the footprint is too complex.

The mirubox white clamp is a **wildcard clamp** used to get where inspectee can't. You can attach it to any subcircuit of the electrical panel that feeds a particular load that you want to know more about. For example, you can attach it to the lighting subcircuit (recommended) or the Air Conditioning / Heat Pump.

If all the subcircuits contain a **mixture of loads** and there is no subcircuit only for the lighting or only for the AC / HP, you will have to configure the white clamp as "**others**" (otherwise some consumption could be measured in duplicate).

The white clamp can also be used to measure the electrical generation of **solar panels**. In this case, the current measured by the white clamp is not considered a consumption (it is not shown in the "pie chart" in the mobile application), but a sun icon appears (next to the house icon) indicating the amount of energy produced. Also in the historical graphs view you can see a second blue line showing the amount of electricity generated at any moment.

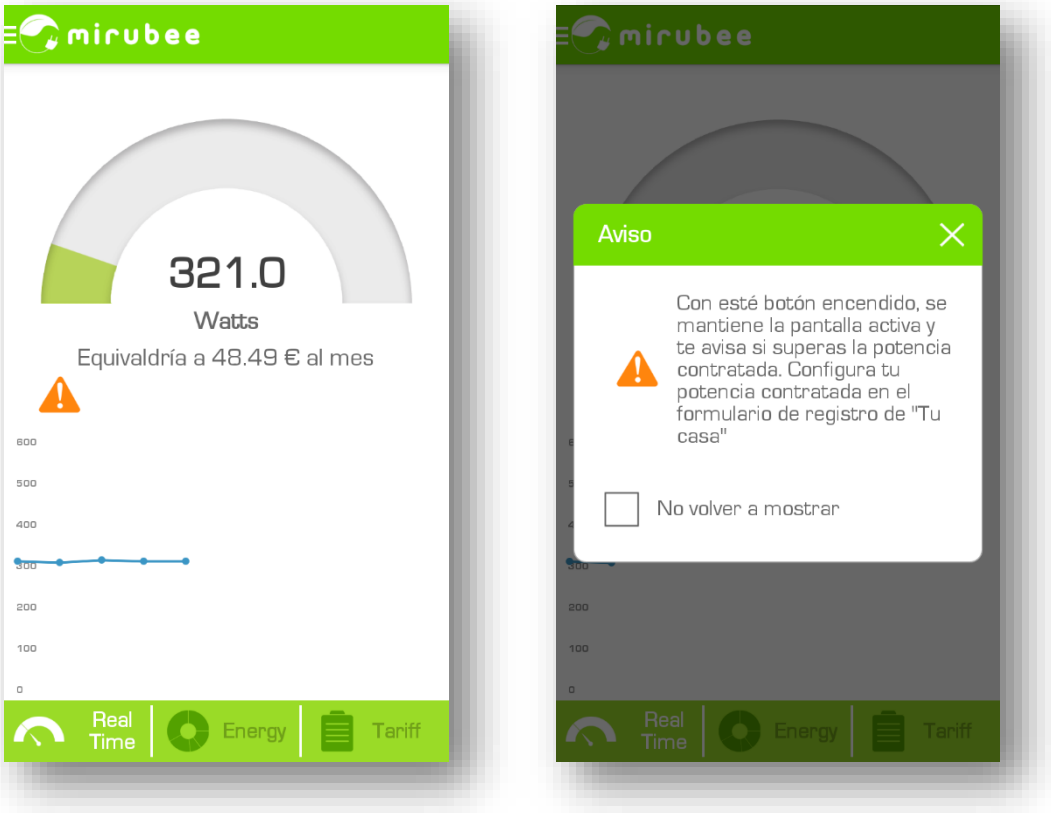
Optimising your electricity tariff

The *Tariff* section of the mobile application (see the section "*How to save*" on the website) shows some interesting information about electricity contracts.

In the first section you will see a list of the top 5 moments of greatest power consumption since you installed the mirubox (higher power in W). If you compare these values with the data of your electricity contract you will be able to see whether you have room to lower the power (the fixed term of the invoice) or whether you have contracted sufficient power.

TECHNICAL NOTE:
At the time of writing, the contract price per kW in Spain is € 3.5/kW (€4.24/kW inc. VAT). A house that, for example, reduces its electricity contract from 6.9 kW to 4.6 kW is contracting 2.3 kW less. At the end of the year this represents a saving of about ***€ 117.***

To help you detect when your home consumption exceeds the maximum contracted there is a button in the "*Real time*" section that triggers the warning. If the button is pressed the screen stays on all the time and if the contracted capacity is exceeded it triggers the notification tone of your mobile phone.

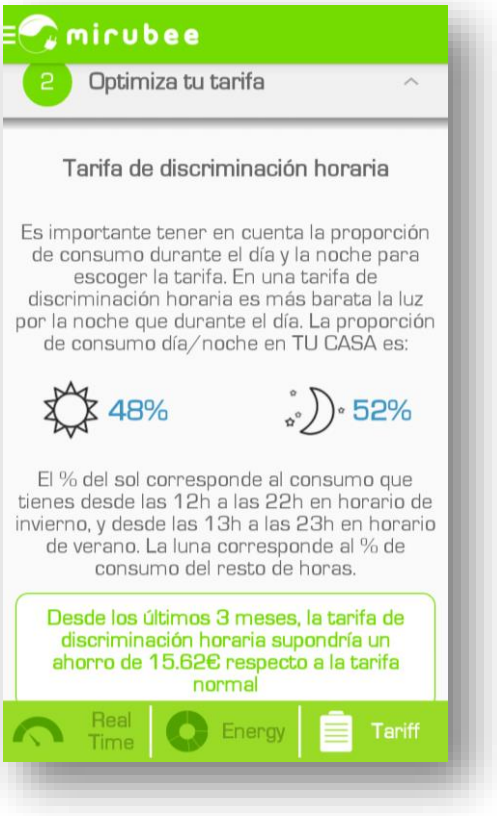


CONSIDERATION:
Just because you "blow the fuses" occasionally (once a month) it is not bad, it indicates that you have contracted the right amount of power. With mirubee and a little practice you will learn what equipment you can use simultaneously without activating the power protection. Note also that the power protection never activates exactly on the contracted power, there is always a certain margin (an additional 10% is tolerated for a long time and even more if the power excess is brief).

In the second part of the "*Tariff*" section you will see a calculation of the proportion of electricity consumption for your home during the daytime and night-time over the last 3 months using an *Hourly Discrimination Rate* (HDR).

TECHNICAL NOTE: _____
With an hourly discrimination rate, electricity is cheaper at night than during the day. The daytime (peak) period comprises 10 hours from 12h to 22h in winter time, and from 13h to 23h in summer time. The night time (off-peak) comprises the other 14 hours.
At the time of writing this manual, the flat rate price in Spain (same price at any hour) is € 0.124/kWh (€ 0.15/kWh inc. VAT), while the price of HDR is € 0.149/kWh in the peak period and € 0.058/kWh in the off-peak period. Prices are exc. VAT.

Mirubee automatically calculates what an HDR would have cost compared to what you spent with your current tariff and whether you should change tariff.


mirubee
2
Optimiza tu tarifa
Tarifa de discriminación horaria
Es importante tener en cuenta la proporción de consumo durante el día y la noche para escoger la tarifa. En una tarifa de discriminación horaria es más barata la luz por la noche que durante el día. La proporción de consumo día/noche en TU CASA es:
48%
52%
El % del sol corresponde al consumo que tienes desde las 12h a las 22h en horario de invierno, y desde las 13h a las 23h en horario de verano. La luna corresponde al % de consumo del resto de horas.
Desde los últimos 3 meses, la tarifa de discriminación horaria supondría un ahorro de 15.62€ respecto a la tarifa normal
Real Time
Energy
Tariff

In general, for households, the calculation indicates that it is more economical to use an HDR than a flat rate tariff (same cost all day). Also, as mirubee allows you to know separately what each appliance consumes, you'll get an idea of the potential savings you can make by shifting certain loads to the night period (washer, dryer, dishwasher, iron, electric hot water heater with timer, etc).

In the third section of the "*Tariff*" section, you will see a table showing the weekly distribution of electricity consumption in your home by time slots. It is a just an additional piece of interesting information that tells you when you need to pay more attention to the consumption in your home!

mirubee
3
Hábitos de consumo
Hábitos de consumo
Los momentos de mayor consumo en tu casa son los lunes por la noche y martes por la noche ¡Intenta rebajar el consumo en esa franja sin aumentarlo en el resto!
l m x j v s d
00-04h
04-08h
08-12h
12-16h
16-20h
20-24h
Si tienes o te vas a cambiar a una tarifa de discriminación horaria, la tabla de arriba te interesa. Traslada los consumos de tu hogar a la mañana o por las noches.
Real Time
Energy
Tariff

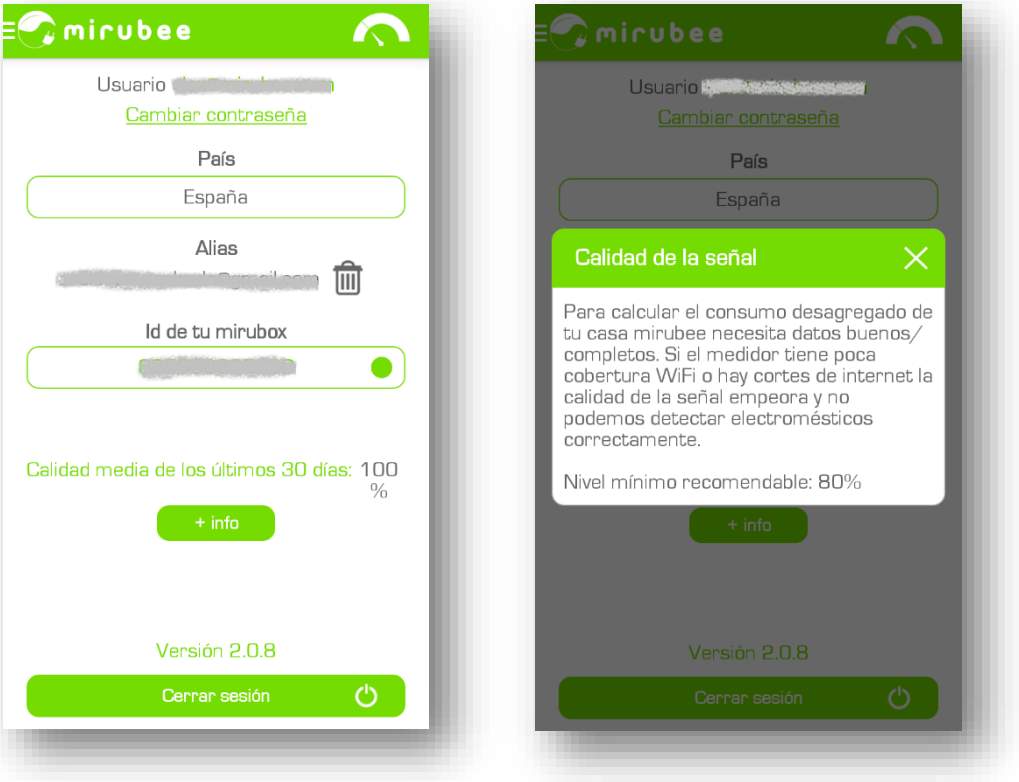
What happens if there are internet problems?

The mirubox needs to be permanently connected to the internet to send the home consumption data to the mirubee servers. If the internet connection is interrupted we stop receiving data, so the information you see in the mirubee application will be incomplete.

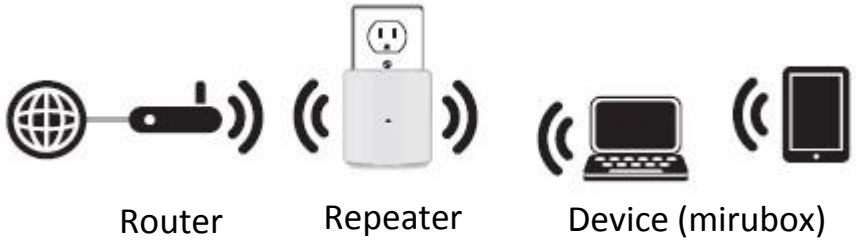
However, the mirubox has a small internal memory that stores the **total cumulative consumption** of your home, just like the electric company meter, so that when the internet connection is restored you can find out the **average consumption during the period of disconnection**. In this case there is no data for *inspectee* to analyse (there will be no consumption breakdown) but the total consumption measure will be maintained.

What if there is bad WiFi coverage?

If there is little WiFi coverage close to the electrical panel it is likely that there will be frequent disconnections and inspectee will not be able to do the electrical footprint analysis. The more complete the power consumption graphic, the better everything works. In the "*general*" section of the mirubee application, there is an indication of the quality of the data received as a percentage. The highest quality data is 100% and the minimum recommended to work reasonably well is 80%.



If data quality is very low and it is suspected that there is a WiFi coverage problem it can be solved by installing a WiFi repeater at the midpoint between the Internet router and the mirubox.



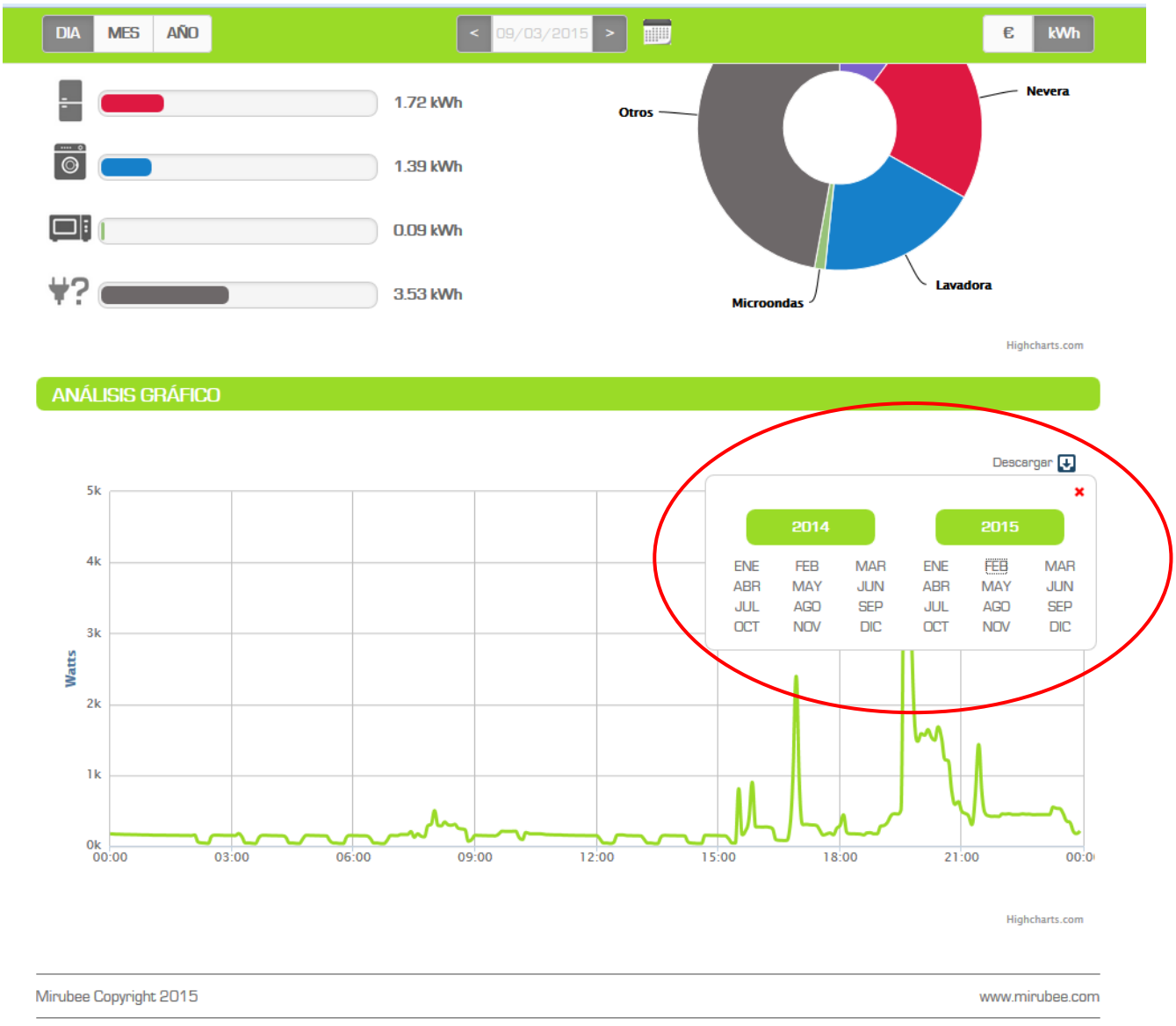
What is an alias?

An alias provides **alternative access** to the home consumption data from another username (another email address). It is designed so that if someone else in the house also wants to access mirubee using their own identification (without sharing passwords) they can also do it. The alias user has **limited functionality** so can only see consumption data; they cannot change the information of the registration forms or alter the setup in any way. In addition, the questions asked by *inspectee* to help train the system are only received by the main user, not the alias.

mirubee
Usuario
Cambiar contraseña
País
Alias
Un alias es un usuario que puede ver todos los datos de consumo pero que no puede modificar la configuración de la cuenta ni tampoco recibirá notificaciones (preguntas) de mirubee
Introduce un correo electrónico
Añadir
Cancelar
Versión 2.0.8
Cerrar sesión

Data download

If you are one of those people who like to play with numbers and analyse them in detail, you can download the total consumption data in an Excel file with one minute resolution. You can do this from the mirubee control panel through web access.



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